HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, Colorado 80527-2400

PATENT APPLICATION

ATTORNEY DOCKET NO. 200309497-1

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Sujata Banerjee et al.

Confirmation No.: 4733

Application No.: 10/797,200

Examiner: Hua Fan

Filing Date: March 11, 2004

Group Art Unit: 2109

Title:

Mail Stop Appeal Brief-Patents
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF APPEAL BRIEF

Transmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed on October 31, 2008.

☒ The fee for filing this Appeal Brief is $540.00 (37 CFR 41.20).

☐ No Additional Fee Required.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

☐ (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d)) for the total number of months checked below:

☐ 1st Month $130	☐ 2nd Month $490	☐ 3rd Month $1110	☐ 4th Month $1730

☐ The extension fee has already been filed in this application.

☒ (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account 08-2025 the sum of $ 540. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees.

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Date of facsimile: December 8, 2008
Typed Name: Carly Mannava
Signature:

Respectfully submitted,
Sujata Banerjee et al.
By

Ashok Mannava
Attorney/Agent for Applicant(s)
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Date: December 8, 2008
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Rev 10/08(AplBrief)

Total number of pages: 41

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Inventor(s):	Sujata Banerjee et al.	**Confirmation No.:**	4733
Serial No.:	10/797,200	**Examiner:**	Hua Fan
Filed:	March 11, 2004	**Group Art Unit:**	2109

Title: RECONFIGURING A MULTICAST TREE

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF - PATENTS

Sir:

This is an Appeal Brief in connection with the decisions of the Examiner in a Final Office Action mailed July 31, 2008, and in connection with the Notice of Appeal filed October 31, 2008. It is respectfully submitted that the present application has been more than twice rejected. Each of the topics required in an Appeal Brief and a Table of Contents are presented herewith and labeled appropriately.

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(1) Real Party in Interest

The real party in interest is Hewlett-Packard Development Company, L.P.

(2) Related Appeals and Interferences

The Appellant is unaware of any appeals or interferences related to this case.

(3) Status of Claims

Claims 1, 4-21, 24-31, and 34-35 are pending in the present application of which claims 1, 14, 21, 24, 27, 31 and 35 are independent. Claims 2-3, 22-23, 32-33 and 36 are canceled. Claims 1, 4-21, 24-31, and 34-35 are rejected and appealed.

(4) Status of Amendments

No amendment was filed subsequent to the Final Office Action dated July 31, 2008.

(5) Summary of Claimed Subject Matter

The subject matter of claims 1, 14, 15, 21, 24, 27, 31 and 35 is at least supported in the following identified sections of the application.

1. A method of detecting a degradation of quality of service in a multicast tree in an application layer multicast network, the method comprising:

detecting at a child node in the multicast tree a degradation of quality of service associated with a service being received at the child node; See page 38, line 1-page 42, line 4, figs 8A-B and 9.

determining whether the degradation of quality of service is resulting from a child-parent link or an upstream link to the child-parent link in the multicast tree; See page 38, line 1-page 42, line 4, figs 8A-B and 9.

selecting a new parent node for the child node in response to detecting the degradation of quality of service is resulting from the child-parent link; and See page 38, line 1-page 42, line 4, figs 8A-B and 9.

selecting a new parent node for a child node incident to the upstream link in response to detecting the degradation of quality of service is resulting from the upstream link. See page 38, line 1-page 42, line 4, figs 8A-B and 9.

14. A method of determining location of degradation of quality of service in a multicast tree in an application layer multicast network, the method comprising:

receiving a complaint from a child node at a parent node in the multicast tree, the complaint indicating a degradation of quality of service of a service being received at the child node; and See page 38, line 1-page 42, line 4, figs 8A-B and 9.

determining whether a cause of the degradation of quality of service is located in an upstream link or is located at a child-parent link. See page 38, line 1-page 42, line 4, figs 8A-B and 9.

15. The method of claim 14, wherein determining whether a cause of the degradation of quality of service is located in an upstream link or is located at a child-parent link comprises:

determining at the parent node whether quality of service associated with the service being received at the child node is degraded; See page 38, line 1-page 42, line 4, figs 8A-B and 9.

transmitting a complaint to the parent node's parent node in the multicast tree indicating a degradation of quality of service at the parent node in response to determining at the parent node that the quality of service is degraded; and See page 38, line 1-page 42, line 4, figs 8A-B and 9.

requesting a list of a set of candidate nodes from a global information table in response to determining at the parent node that the quality of service is not degraded, wherein each of the candidate nodes is operable to provide the service to the child node and is physically close to the child node. See page 38, line 1-page 42, line 4, figs 8A-B and 9.

21. (Previously Presented) A method of determining whether to reconfigure a multicast tree in an application layer multicast network, the method comprising:

detecting an occurrence of a predetermined condition in the application multicast network, wherein the predetermined condition is stored in a global information table stored in distributed hash table nodes in the network; See page 38, line 1-page 42, line 4, figs 8A-B and 9.

determining whether to reconfigure the multicast tree in response to detecting the occurrence of the predetermined condition, wherein determining whether to reconfigure the

multicast tree comprises determining whether reconfiguring the multicast tree improves quality of service for a node in the multicast tree; and See page 38, line 1-page 42, line 4, figs 8A-B and 9.

reconfiguring the multicast tree in response to determining that reconfiguring the multicast tree improves quality of service for a node in the multicast tree. See page 38, line 1-page 42, line 4, figs 8A-B and 9.

24. A node in a multicast tree, the node comprising:

means for detecting a degradation of quality of service associated with a service being received at the node; and See computer system 1100, fig 11, see page 38, line 1-page 42, line 4, figs 8A-B and 9.

means for transmitting a complaint to a parent node of the node in the multicast tree, the complaint indicating a degradation of quality of service at the child node, wherein the multicast tree includes a service path comprising a source node, the parent node and the node, and the parent node is an immediate parent node to the node such that data for a service is transmitted in the service path directly from the parent node to the node. See computer system 1100, fig 11, see page 38, line 1-page 42, line 4, figs 8A-B and 9.

27. A parent node connected to a child node in a multicast tree, the parent node comprising:

means for receiving a complaint from the child node, the complaint indicating a degradation of quality of service of a service being received at the child node; and See computer system 1100, fig 11, see page 38, line 1-page 42, line 4, figs 8A-B and 9.

means for determining whether quality of service associated with the service is degraded at the parent node; See computer system 1100, fig 11, see page 38, line 1-page 42, line 4, figs 8A-B and 9.

means for transmitting a complaint to the parent node's parent node in the multicast tree indicating a degradation of quality of service at the parent node in response to determining at the parent node that the quality of service is degraded; and See computer system 1100, fig 11, see page 38, line 1-page 42, line 4, figs 8A-B and 9.

means for requesting a list of a set of candidate nodes from a global information table in response to determining at the parent node that the quality of service is not degraded, wherein each of the candidate nodes is operable to provide the service to the child node and is physically close to the child node. See computer system 1100, fig 11, see page 38, line 1-page 42, line 4, figs 8A-B and 9.

31. Computer software embedded on a tangible computer readable medium, the computer software comprising instructions performing: See computer system 1100, fig 11, see page 38, line 1-page 42, line 4, figs 8A-B and 9.

detecting at a child node in a multicast tree a degradation of quality of service associated with a service being received at the child node; See computer system 1100, fig 11, see page 38, line 1-page 42, line 4, figs 8A-B and 9.

determining whether the degradation of quality of service is resulting from a child-parent link or an upstream link to the child-parent link in the multicast tree; See computer system 1100, fig 11, see page 38, line 1-page 42, line 4, figs 8A-B and 9.

selecting a new parent node for a child node incident to the upstream link in response to detecting the degradation of quality of service is resulting from the upstream link; and See computer system 1100, fig 11, see page 38, line 1-page 42, line 4, figs 8A-B and 9.

selecting a new parent node for the child node in response to detecting the degradation of quality of service is resulting from the child-parent link. See computer system 1100, fig 11, see page 38, line 1-page 42, line 4, figs 8A-B and 9.

35. Computer software embedded on a tangible computer readable, the computer software comprising instructions performing: See computer system 1100, fig 11, see page 38, line 1-page 42, line 4, figs 8A-B and 9.

detecting an occurrence of a predetermined condition in the application multicast network, wherein the predetermined condition is stored in a global information table stored in distributed hash table nodes in the network; See computer system 1100, fig 11, see page 38, line 1-page 42, line 4, figs 8A-B and 9.

determining whether to reconfigure the multicast tree in response to detecting the occurrence of the predetermined condition; See computer system 1100, fig 11, see page 38, line 1-page 42, line 4, figs 8A-B and 9.

determining whether reconfiguring the multicast tree improves quality of service for a node in the multicast tree; and See computer system 1100, fig 11, see page 38, line 1-page 42, line 4, figs 8A-B and 9.

reconfiguring the multicast tree in response to determining that reconfiguring the multicast tree improves quality of service for a node in the multicast tree. See computer system 1100, fig 11, see page 38, line 1-page 42, line 4, figs 8A-B and 9.

(6) Grounds of Rejection to be Reviewed on Appeal

A. Claims 31-36 were rejected under 35 U.S.C. §101 because the claimed invention is allegedly directed to non-statutory subject matter.

B. Claims 1, 4-8, 10-18, 20-21, 24-27, 29-31 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Xu et al. HPL-2002-314R1, (referred to as XuR1).

C. Claim 9 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over XuR1 in view of Rune et al. 2004/0156384, (referred to as Rune).

D. Claims 19 and 28 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over XuR1 in view of Xu et al. HPL-2002-126R2, (referred to as XuR2).

E. Claims 1, 4-5, 10, 12, 14, 24 and 31 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Novaes et al. 2003/0012132, (referred to as Novaes), in view

of Banerjee et al. "Construction of an Efficient Overlay Multicast for Real-Time Applications", referred to as Banerjee.

F. Claim 6 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Novaes in view of Banerjee as applied to claim 1 above, and further in view of Roy et al. "Application Level Hand-Off Support for Mobile Media Transcoding Sessions", referred to as Roy.

G. Claims 7-8, 13, 15-18, 20, 21, 25-27, 34, and 35 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Novaes in view of Banerjee as applied to claim 1 above, and further in view of Xu et al. HPL-2002-281, (referred to as Xu281).

H. Claim 11 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Novaes in view of Banerjee, as applied to claim 1 above, and further in view of Mandato et al. 2005/0157660, (referred to as Mandato).

I. Claim 9 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Novaes in view of Banerjee, as applied to claim 1 above, and further in view of Rune.

J. Claims 19, 28-30 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Novaes in view of Banerjee, as applied to claim 1 above, and further in view of Xu281 and further in view of XuR2.

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(7) **Arguments**

A. The claim rejection under 35 U.S.C. §101 should be reversed.

Claims 31-36 were rejected under 35 U.S.C. §101 because the claimed invention is allegedly directed to non-statutory subject matter. In particular, the rejection asserts claims 31-36 cover non-statutory subject matter comprised of signals.

Claims 32-33 and 36 are canceled so the rejection of these claims is moot.

Independent claims 31 and 35 were rejected because the computer readable medium allegedly covers signals. However, claims 31 and 35 recite a "tangible" computer readable medium. Signals are not tangible, and thus, claims 31, 34, and 35 are statutory and the rejection under 35 U.S.C. §101 of these claims should be reversed.

B. The claim rejections relying upon XuR1 should be reversed because XuR1 is not prior art.

Claims 1, 4-8, 10-18, 20-21, 24-27, 29-31 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Xu et al. (HPL-2002-314R1), referred to as XuR1. Claim 9 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over XuR1 in view of Rune et al. (2004/0156384), referred to as Rune. Claims 19 and 28 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over XuR1 in view of Xu et al. (HPL-2002-126R2), referred to as XuR2.

The attached declaration and exhibit 1, which are provided in the Evidence Appendix herein, are evidence that XuR1 was not published more than 1 year prior to the filing date of the

present application. Also, XuR1 describes the Applicants' own work and claimed invention. Accordingly, XuR1 is not prior art, and the above mentioned rejections relying on XuR1 should be reversed.

A declaration was filed in the last Response of June 2, 2008. On page 24 of the Final Office Action, the Examiner asserted that this declaration was insufficient because it lacked the "willful false statements ..." and failed to indicate why the "Date Cataloged" was not put on the reference and what the "external date" printed on the reference actually represents.

The declaration provided in the Evidence Appendix herein includes the "willful false statements ... ." Also, this declaration indicates that "External" provided on the front page of XuR1 is the security level, and the March 10, 2003 date also provided on the front page of XuR1 is the Date Issued. The declaration further indicates that Date Issued is the date the content of XuR1 was released for internal processing, such as conversion to PDF, rather than an external publication date. Accordingly, the declaration provided in the Evidence Appendix clearly supports the fact that XuR1 was not published more than one year prior to the filing date of this application.

D. Rejections under 35 U.S.C. §103(a).

The test for determining if a claim is rendered obvious by one or more references for purposes of a rejection under 35 U.S.C. § 103 is set forth in *KSR International Co. v. Teleflex Inc.*, 550 U.S._, 82 USPQ2d 1385 (2007):

> "Under §103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented." Quoting *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1 (1966).

According to the Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in view of *KSR International Co. v. Teleflex Inc.*, Federal Register, Vol. 72, No. 195, 57526, 57529 (October 10, 2007), once the *Graham* factual inquiries are resolved, there must be a determination of whether the claimed invention would have been obvious to one of ordinary skill in the art based on any one of the following proper rationales:

> (A) Combining prior art elements according to known methods to yield predictable results; (B) Simple substitution of one known element for another to obtain predictable results; (C) Use of known technique to improve similar devices (methods, or products) in the same way; (D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results; (E) "Obvious to try"—choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success; (F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art; (G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention. *KSR International Co. v. Teleflex Inc.*, 550 U.S._, 82 USPQ2d 1385 (2007).

Furthermore, as set forth in *KSR International Co. v. Teleflex Inc.*, quoting from *In re Kahn*, 441 F. 3d 977, 988 (CA Fed. 2006), "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasonings with some rational underpinning to support the legal conclusion of obviousness."

Furthermore, as set forth in MPEP 2143.03, to ascertain the differences between the prior art and the claims at issue, "[a]ll claim limitations must be considered" because "all words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385.

If the above-identified criteria and rationales are not met, then the cited references fail to render obvious the claimed invention and, thus, the claimed invention is distinguishable over the cited references.

The rejection of claims 1-43 rejected under 35 U.S.C. §103(a) as being unpatentable over Reed in view of Okamura should be reversed because Reed in view of Okamura fails to teach or suggest all the features of independent claims 1, 15, 23 and 32.

Independent claim 1 recites:

> limiting access permissions of an application to one or more directories, the one or more directories including a first directory;
>
> receiving a request to edit the file using the application, wherein the file is stored in a second directory, the second directory not being included in the one or more directories.

1. The rejection of claims 1, 4-5, 10, 12, 14, 24 and 31 under 35 U.S.C. §103(a) as allegedly being unpatentable over Novacs in view of Banerjee should be reversed for failure to teach or suggest all the claimed features.

Independent claim 1 recites, "selecting a new parent node for a child node incident to the upstream link in response to detecting the degradation of quality of service is resulting from the upstream link."

The rejection alleges Novaes discloses these features in paragraphs 63 and 71. However, Novaes fails to teach or suggest detecting the degradation of quality of service is resulting from an upstream link.

Novaes discloses two types of monitoring methods. See paragraph 62.. In one type, described in paragraph 63, a child node sends a message to a parent node. If the parent node does not reply, then the child contacts the publisher directly to request reinsertion into a new SAM tree. Thus, only a child-parent link is tested. Novaes fails to teach or suggest monitoring an upstream link that is upstream to the child-parent link. Thus, Novaes fails to teach or suggest detecting the degradation of quality of service is resulting from an upstream link to the child-parent link.

In paragraph 71, Novaes discloses point-to-point reception is monitored at step 324. If the measured point-to-point QoS, c, is less than a predetermined QoS, p, then new node placement is requested. Here again Novaes only discloses monitoring point-to-point, which is the link between two nodes. Novaes fails to disclose the child node measuring and comparing QoS for an upstream link.

On page 27 of the Final Office Action, the Examiner asserts, as disclosed in paragraph 63 of Novaes, each node reports to a publisher if it does not get a response from the parent. The Examiner then asserts that this leads to the conclusion that the publisher node has knowledge of

and determines where the degradation results from the tree. This assertion of the Examiner is attempting to create teachings in Novaes that are simply not described in Novaes. Paragraph 63 states, "In the event that a parent node fails to reply to a verification message, the child node will contact the publisher node directly and request to be reinserted in the SAM tree." Thus, this passage of Novaes only discloses a node contacting the publisher in order to be reinserted in the SAM tree. Novaes does not teach or suggest the publisher detecting a degradation of quality of service resulting from an upstream link. The publisher of Novaes is for receiving requests for re-insertion rather than for detecting a degradation of quality in any link in the SAM tree, let alone an upstream link from the node. Novaes relies on the nodes to identify a failed link rather than the publisher, and a failed link identifiable by a node in Novaes is a direct link between a parent and a child rather than an upstream link.

Banerjee was cited to teach an application level multicast tree. However, Banerjee fails to cure any of the deficiencies of Novaes described herein.

Independent claim 14 recites, "receiving a complaint from a child node at a parent node in the multicast tree, the complaint indicating a degradation of quality of service of a service being received at the child node." Novaes fails to teach or suggest these features. In paragraph 63, Novaes discloses the child contacts the publisher node directly instead of the parent node if the parent does not send a reply. In paragraph 71, Novaes discloses node placement is requested again from the publisher, rather than the parent, if c is less than P. Thus, Novaes fails to teach or suggest the parent receiving a complaint from the child. Instead, in Novaes, the child contacts a publisher rather than a parent. Banerjee fails to remedy the deficient teachings of Novaes.

On page 27 of the Final Office Action, the Examiner attempts to take a different interpretation of Novaes to reject claim 14. The Examiner asserts the publisher node of Novaes is the claimed parent node. Given this interpretation, Novaes at least fails to teach or suggest "transmitting a complaint to the parent's node parent node in the multicast tree indicating a degradation of quality of service at the parent node" as recited in claim 15. Novaes fails to teach or suggest the publisher node has a parent node and fails to teach or suggest that the publisher node transmits an indication of a degradation of quality of service at itself to its parent node.

Independent claims 31 recites features similar to claim 1 described above.

Independent claim 24 recites features similar to claim 14 described above. Furthermore, claim 24 recites, "the parent node is an immediate parent node to the node such that data for a service is transmitted in the service path directly from the parent node to the node." Novaes fails to teach or suggest the publisher is an immediate parent node to the node sending the request for re-insertion such that data for a service is transmitted in the service path directly from the publisher to that node.

For at least the reasons the rejections of claims 1, 4-5, 10, 12, 14, 24 and 31 under 35 U.S.C. §103(a) as allegedly being unpatentable over Novaes in view of Banerjee should be reversed.

2. The rejection of claim 6 under 35 U.S.C. §103(a) as allegedly being unpatentable over Novaes in view of Banerjee as applied to claim 1 above, and further in

view of Roy should be reversed for at least the reasons the rejection of claim 1 should be reversed.

The rejection of claim 6 should be reversed for at least the reasons the rejection of claim 1 should be reversed.

3. The rejection of claims 7-8, 13, 15-18, 20-23, 25-27, 34-36 under 35 U.S.C. §103(a) as allegedly being unpatentable over Novaes in view of Banerjee in further in view of Xu281 should be reversed for failure to teach or suggest all the claimed features.

Independent claim 21 recites,

> determining whether reconfiguring the multicast tree improves quality of service for a node in the multicast tree; and
>
> reconfiguring the multicast tree in response to determining that reconfiguring the multicast tree improves quality of service for a node in the multicast tree.

Independent claim 35 recites similar features.

The rejection alleges these features are taught by Novaes in paragraphs 63 and 71. However, Novaes only discloses sending a message to the publisher to get reinserted in the SAM tree. Neither Novaes nor any of the other prior art of record discloses determining whether reconfiguring will actually improve the QoS and then reconfiguring in response to determining the QoS will be improved. In certain circumstances, there may not be another parent or upstream link available that will improve QoS. However, Novaes reinserts the node in the SAM tree

regardless of determining whether the QoS will be improved. Banerjee and Xu281 also fail to teach or suggest these features.

Independent claim 27 recites,

> means for transmitting a complaint to the parent node's parent node in the multicast tree indicating a degradation of quality of service at the parent node in response to determining at the parent node that the quality of service is degraded; and
>
> means for requesting a list of a set of candidate nodes from a global information table in response to determining at the parent node that the quality of service is not degraded, wherein each of the candidate nodes is operable to provide the service to the child node and is physically close to the child node.

Novaes at least fails to teach or suggest transmitting a complaint to the parent node's parent node in the multicast tree indicating a degradation of quality of service at the parent node. The Final Office Action asserts the publisher node of Novaes is the claimed parent node. Novaes fails to teach or suggest transmitting a complaint to a parent node of the publisher node and also fails to teach or suggest determining a degradation of quality of service at the publisher node. Banerjee and Xu281 also fail to teach or suggest these features.

For at least these reasons the rejection of claims 7-8, 13, 15-18, 20-21, 25-27 and 34-35 should be reversed.

4. The rejection of claims 9, 11, 19, 28-30 under 35 U.S.C. §103(a) should be reversed for at least the reasons the rejections of their corresponding independent claims should be reversed.

Claim 11 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Novaes et al. in view of Banerjee et al., as applied to claim 1 above, and further in view of Mandato et al. (2005/0157660). Claim 9 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Novaes et al. in view of Banerjee et al., as applied to claim 1 above, and further in view of Rune et al. Claims 19, 28-30 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Novaes et al. in view of Banerjee et al., as applied to claim 1 above, and further in view of Xu et al. (HPL-2002-281) and further in view of Xu et al. (HPL-2002-126R2).

The rejections of these claims should be reversed at least for the reasons the rejections of their respective independent claims should be reversed.

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(8) Conclusion

For at least the reasons given above, the rejections cited above should be reversed and all pending claims should be allowed.

Please grant any required extensions of time and charge any fees due in connection with this Appeal Brief to deposit account no. 08-2025.

Respectfully submitted,

Dated: December 8, 2008 By

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(9) Claim Appendix

1. (Previously Presented) A method of detecting a degradation of quality of service in a multicast tree in an application layer multicast network, the method comprising:

detecting at a child node in the multicast tree a degradation of quality of service associated with a service being received at the child node;

determining whether the degradation of quality of service is resulting from a child-parent link or an upstream link to the child-parent link in the multicast tree;

selecting a new parent node for the child node in response to detecting the degradation of quality of service is resulting from the child-parent link; and

selecting a new parent node for a child node incident to the upstream link in response to detecting the degradation of quality of service is resulting from the upstream link.

4. (Original) The method of claim 1, further comprising:

transmitting a complaint to the parent node, the complaint indicating a degradation of quality of service at the child node;

receiving a list of a set of candidate nodes in response to the degradation of quality of service resulting from the child-parent link; and

selecting one of the candidate nodes as a new parent node for the child node.

5. (Original) The method of claim 4, further comprising constructing a new service path in the multicast tree including the child node and the new parent node.

6. (Original) The method of claim 5, wherein constructing a new service path further comprises:

establishing a connection to the new parent node while maintaining a connection to the parent node;

synchronizing data received from the parent node and the new parent node; and

terminating the connection to the parent node.

7. (Original) The method of claim 4, wherein selecting one of the candidate nodes as a new parent node for the child node comprises:

measuring distances to each of the candidate nodes;

determining a metric associated with the quality of service and each candidate node; and

selecting one of the candidate nodes that is closest to the child node and that is operable to satisfy at least one quality of service characteristic.

8. (Original) The method of claim 4, wherein each of the candidate nodes is physically close to the child node.

9. (Original) The method of claim 4, comprising:

determining whether the complaint timed out;

retransmitting the complaint to the parent node in response to the complaint timing out.

10. (Original) The method of claim 1, wherein detecting at a child node a degradation of quality of service comprises detecting a measured quality of service characteristic associated with the received service falling below a predetermined threshold.

11. (Original) The method of claim 1, wherein detecting at a child node a degradation of quality of service comprises detecting degradation of quality of service as perceived by a user at the child node.

12. (Original) The method of claim 1, wherein quality of service includes at least one of a metric associated with processing data at a node receiving the service and a metric associated with transmitting data for the service between nodes in the multicast tree.

13. (Original) The method of claim 1, further comprising:

determining at the parent node whether quality of service associated with the service is degraded;

transmitting a complaint to the parent node's parent node in the multicast tree indicating a degradation of quality of service at the parent node in response to determining at the parent node that the quality of service is degraded; and

requesting a list of a set of candidate nodes from a global information table in response to determining at the parent node that the quality of service is not degraded, wherein each of the candidate nodes is operable to provide the service to the child node and is physically close to the child node.

14. (Original) A method of determining location of degradation of quality of service in a multicast tree in an application layer multicast network, the method comprising:

receiving a complaint from a child node at a parent node in the multicast tree, the complaint indicating a degradation of quality of service of a service being received at the child node; and

determining whether a cause of the degradation of quality of service is located in an upstream link or is located at a child-parent link.

15. (Original) The method of claim 14, wherein determining whether a cause of the degradation of quality of service is located in an upstream link or is located at a child-parent link comprises:

determining at the parent node whether quality of service associated with the service being received at the child node is degraded;

transmitting a complaint to the parent node's parent node in the multicast tree indicating a degradation of quality of service at the parent node in response to determining at the parent node that the quality of service is degraded; and

requesting a list of a set of candidate nodes from a global information table in response to determining at the parent node that the quality of service is not degraded, wherein each of the candidate nodes is operable to provide the service to the child node and is physically close to the child node.

16. (Original) The method of claim 15, wherein requesting a list of a set of candidate nodes from a global information table comprises transmitting location information for the child node to a distributed hash table overlay network storing the global information table.

17. (Original) The method of claim 16, wherein the global information table includes at least location information and information associated with services provided by nodes in the application layer multicast network.

18. (Original) The method of claim 17, wherein the global information table is stored in a plurality of distributed hash table nodes in the distributed hash table overlay network, such that each distributed hash table node stores information for nodes physically close in an underlying physical network.

19. (Original) The method of claim 18, wherein requesting a list of a set of candidate nodes from the global information table comprises hashing a landmark vector of the child node to

identify a distributed hash table node to transmit a request for a set of candidate nodes for the child node.

20. (Original) The method of claim 15, wherein the global information table stores information for nodes transmitting a complaint, the method comprising:

searching the global information table for the set of candidate nodes such that the set of candidate nodes does not include a node that transmitted a complaint.

21. (Previously Presented) A method of determining whether to reconfigure a multicast tree in an application layer multicast network, the method comprising:

detecting an occurrence of a predetermined condition in the application multicast network, wherein the predetermined condition is stored in a global information table stored in distributed hash table nodes in the network;

determining whether to reconfigure the multicast tree in response to detecting the occurrence of the predetermined condition, wherein determining whether to reconfigure the multicast tree comprises determining whether reconfiguring the multicast tree improves quality of service for a node in the multicast tree; and

reconfiguring the multicast tree in response to determining that reconfiguring the multicast tree improves quality of service for a node in the multicast tree.

24. (Previously Presented) A node in a multicast tree, the node comprising:

means for detecting a degradation of quality of service associated with a service being received at the node; and

means for transmitting a complaint to a parent node of the node in the multicast tree, the complaint indicating a degradation of quality of service at the child node, wherein the multicast tree includes a service path comprising a source node, the parent node and the node, and the parent node is an immediate parent node to the node such that data for a service is transmitted in the service path directly from the parent node to the node.

25. (Original) The node of claim 24, further comprising:

means for receiving a list of a set of candidate nodes in response to the degradation of quality of service resulting from a child-parent link; and

means for selecting one of the candidate nodes as a new parent node for the child node.

26. (Original) The node of claim 25, further comprising:

means for receiving notification of an occurrence of a predetermined condition; and

means for determining whether to reconfigure the multicast tree in response to the occurrence of the predetermined condition.

27. (Original) A parent node connected to a child node in a multicast tree, the parent node comprising:

means for receiving a complaint from the child node, the complaint indicating a degradation of quality of service of a service being received at the child node; and

means for determining whether quality of service associated with the service is degraded at the parent node;

means for transmitting a complaint to the parent node's parent node in the multicast tree indicating a degradation of quality of service at the parent node in response to determining at the parent node that the quality of service is degraded; and

means for requesting a list of a set of candidate nodes from a global information table in response to determining at the parent node that the quality of service is not degraded, wherein each of the candidate nodes is operable to provide the service to the child node and is physically close to the child node.

28. (Original) The parent node of claim 27, further comprising:

means for hashing location information for the child node to identify a location in a distributed hash table overlay network storing the global information table; and

means for transmitting the location information with a request for a list of a set of candidate nodes with the location information to the identified location.

29. (Original) The parent node of claim 28, wherein the global information table includes at least location information and information associated with services provided by nodes in a network including the multicast tree.

30. (Original) The parent node of claim 29, wherein the global information table is stored in a plurality of distributed hash table nodes in the distributed hash table overlay network, such that each distributed hash table node stores information for nodes physically close in the network.

31. (Previously Presented) Computer software embedded on a tangible computer readable medium, the computer software comprising instructions performing:

detecting at a child node in a multicast tree a degradation of quality of service associated with a service being received at the child node;

determining whether the degradation of quality of service is resulting from a child-parent link or an upstream link to the child-parent link in the multicast tree;

selecting a new parent node for a child node incident to the upstream link in response to detecting the degradation of quality of service is resulting from the upstream link; and

selecting a new parent node for the child node in response to detecting the degradation of quality of service is resulting from the child-parent link.

34. (Original) The computer software of claim 31 comprising instructions performing:

transmitting a complaint to the parent node, the complaint indicating a degradation of quality of service at the child node;

receiving a list of a set of candidate nodes in response to the degradation of quality of service resulting from the child-parent link; and

selecting one of the candidate nodes as a new parent node for the child node.

35. (Previously Presented) Computer software embedded on a tangible computer readable, the computer software comprising instructions performing:

detecting an occurrence of a predetermined condition in the application multicast network, wherein the predetermined condition is stored in a global information table stored in distributed hash table nodes in the network;

determining whether to reconfigure the multicast tree in response to detecting the occurrence of the predetermined condition;

determining whether reconfiguring the multicast tree improves quality of service for a node in the multicast tree; and

reconfiguring the multicast tree in response to determining that reconfiguring the multicast tree improves quality of service for a node in the multicast tree.

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(10) Evidence Appendix

The Evidence consists of a declaration under 1.132 by Jeff Archie (2 pages) and an Exhibit 1 (3 pages).

(11) Related Proceedings Appendix

None.

Evidence Appendix

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Atty Docket No.: 200309497-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Sujata Banerjee et al.	Confirmation No.:	4733
Serial No.:	10/797,200	Examiner:	Hua Fan
Filed:	March 11, 2004	Group Art Unit:	4134

Title: RECONFIGURING A MULTICAST TREE

DECLARATION FROM JEFF ARCHIE REGARDING EXTERNAL PUBLICATION DATE OF HEWLETT-PACKARD (HP) TECHINCAL REPORT, HPL-2002-314R1

I, Jeff Archie, hereby declare as follows:

1. I am currently the HP Labs Research Library Manager.

2. My responsibilities include publishing technical reports to the external HP Labs web site, www.hpl.hp.com.

3. The procedure for handling publication of technical reports on the external HP Labs web site includes generating a catalog entry in the library catalog.

4. Each catalog entry includes fields, among others, for "Date Cataloged" and "Security Level".

5. The "Security Level" field indicates whether the HP technical report is approved for internal or external publication. For technical reports approved for external publication, the "Date Cataloged" field indicates the external publication date

6. The catalog entry for HP Technical Report HPL-2002-314R1 is attached and labeled as Exhibit 1.

7. Page 1 of Exhibit 1 indicates a Date Cataloged of March 21, 2003, which is

Evidence Appendix

indicative of the external publication date of HPL-2002-314R1 on the HP Labs web site.

8. Page 2 of Exhibit 1 indicates a Security Level of "External" for HPL-2002-314R1, which is shown on the front page of HPL-2002-314R1.

9. Page 2 of Exhibit 1 indicates a Date Issued of March 10, 2003. The Date Issued represents the date the content of HPL-2002-314R1 was released for internal processing, which includes making the content of HPL-2002-314R1 available for processing into a PDF for later posting to the web site.

10. The front page of HPL-2002-314R1 shows the Date Issued of March 10, 2003, and the Security Level as External.

11. I, Jeff Archie, acknowledge that willful false statements and the like are punishable under 18 U.S.C. § 1001 by fine, imprisonment, or both, and may jeopardize the validity of the application or any patent issuing thereof.

Date: 12/5/08

Jeff Archie
HP Labs Research Library Manager
Hewlett-Packard Labs

Exhibit (1), Evidence Appendix

BASIC

Receiver Initiated Just-In-Time Adaptation for Rich Media Distribution / Xu, Zhichon; Tang, Chunqiang; Wang, Zhiheng; Banerjee, Sujata; Lee, Sung-Ju
HPL-2002-314(R.1) copy:1 id:107376-1001

CONTROL

Title Info

title control #:	a107376	no. of volumes:	1
record format:	TECHPUBS		
created by:	RINALDTP	date created:	2/26/2003
date cataloged:	3/21/2003		
last modified by:	ADMIN	date modified:	8/20/2007

BIBLIOGRAPHIC INFO

Report Title	:TITL	Receiver Initiated Just-In-Time Adaptation for Rich Media Distribution
Report Author(s)	:AUTH	Xu, Zhichen; Tang, Chunqiang; Wang, Zhiheng; Banerjee, Sujata; Lee, Sung-Ju
Report Keyword(s)	:DESC	streaming media; overlay network; multicast
Number of Pages	:PAGE	5
Abstract	:ABS	Application-level multicast networks overlaid over unicast IP networks are increasingly gaining in importance. While there have been several proposals for overlay multicast networks, very few of them focus on the stringent requirements of real-time applications such as streaming media. We propose an efficient overlay application layer multicast infrastructure for multimedia real-time applications based on a combination of landmark clustering and RTT measurements. Our goal is to balance the network-oriented goals of building an efficient multicast tree with the application-oriented goals of providing good QoS with minimal disruptions. Using accurate global soft state information tables, our approach promptly

Exhibit (1). Evidence Appendix

		constructs and reconfigures high quality trees. A distinguished feature of our approach is that the tree reconfiguration is initiated just-in-time by the application client at the receiver when the media quality falls below a specific threshold. The goal is to achieve dynamic tree reconfiguration with very low switching delay such that end users do not perceive any application performance degradation.
Date Issued	:RPDT	20030310
Document Type	:DT	no PS;PDF
Security Level	:RCLS	External
Department	:DEPT	LSND, Linux Systems & Networks Department
Laboratory	:LAB	ISSL, Internet Systems and Storage Laboratory
Center	:CEN	ICPRC, Internet and Computing Platforms Research Center
Entity Code	:EN	1900
View Full Text	:URL	|uhttp://library.hp.com/techpubs/2002/HPL-2002-314R1.html

VOL/COPY

Call Number Info

call number:	HPL-2002-314(R.1)
class scheme:	ALPHANUM
library:	TECHPUBS

Item Info

item ID:	107376-1001	type:	TECHRPT
copy number:	1	home location:	PALOALTO
		item cat1:	EXTERNAL
permanent:	Y	current location:	PALOALTO
circulate:	N	number of pieces:	1
total charges:	0		

Extended Info

EXTEND

Exhibit 1, Evidence Appendix

Volume and Copy Info

(Displaying 1 of 1 volumes)

CIRC INFO

total bills: none checkouts: none holds: none
Extended Info:none
controls: none

CHECKOUTS

CHECKOUTS:NONE

HOLDS

HOLDS:NONE